Availability of Electronic Braille and Utilization by Visually Impaired Pupils and Students in Inclusive Schools in South-South, Nigeria

Itoro Effiong Ekanemesang., Dr. Daniel Aniekan Aloysius., Mmenyene Daniel Aloysius

Department of Library and Information Science, Federal Polytechnic, Ukana, Akwa Ibom State Nigeria

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ABSTRACT

This study examined availability of electronic Braille and utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria. Two objectives, research questions and hypotheses were raised to guide the study. Descriptive survey research design was employed. The population for the study was 302 visually impaired library users in ten (10) inclusive schools in South-South, Nigeria. All the visually impaired library users in the ten (10) inclusive schools were sampled using census sampling technique. A researcher-developed interview schedule known as "Availability of Electronic Braille and Utilization by Visually Impaired Pupils and Students Questionnaire (AEBUVIPSQ)" was used in collecting data for the study. It was divided into two sections. Sections 'A' and 'B'. Section 'A' contained items generated to elicit responses in line with the independent variable while section 'B' elicited information on the dependent variable. The instrument was face validated by the researchers. The researchers and trained research assistants administered the copies of the instrument. The data generated was analyzed using mean, standard deviation to answer the research questions while t-test was used to test the hypotheses at .05 levels of significance. The result showed that there is a significant influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria. The study concluded that the provision of electronic Braile enhanced patronage by visually impaired pupils and students in inclusive schools in South-South, Nigeria. It recommended among others that management of inclusive schools in Nigeria should equip inclusive schools with adequate electronic Braile and electronic note takers to enhance learning and research of the visually impaired pupils and students.

Keywords: visual acuity, electronic Braille, electronic note takers, equitable learning opportunities

INTRODUCTION

A visually impaired student/pupil is one with loss of visual acuity and inability to see objects as clearly as a healthy child. The Centers for Disease Control and Prevention (2022) defined visual impairment as functional limitation of the eye or eyes or the vision system that leads to: loss of visual acuity or inability of a person to see an object clearly, loss of visual field or inability of an individual to see a distant object, photophobia or inability to look at light, diplopic or double vision, visual distortion or distortion of images or combination of the above features. Similarly, Adebimpe (2015) grouped visual impairment into certified blindness, low vision, astigmatism and partial sight. These are persons, whose ocular organs are damaged, making it difficult or impossible to receive information through the eyes.

According to the International Council of English Braille (2021), there are 43 million people living with blindness and 295 million people living with moderate-to-serve visual impairment. The World Health Organisation (WHO) (2024) maintained that globally, at least 2.2 billion people have a near or distance vision impairment. In at least 1 billion of these, vision impairment could have been prevented or is yet to be addressed. Among this 1 billion people, the main conditions causing distance vision impairment or blindness are cataract (94 million), refractive error (88.4 million), age related macular degeneration (8 million), glaucoma (7.7 million), diabetic retinopathy (3.9 million), presbyopia (826 million)

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Sight Savers International (2017) submitted that there are four million visually impaired persons in Nigeria; approximately, one million are children studying in inclusive schools. This category of pupils/students can be very skillful, intelligent and talented. The (World Health Organization (WHO) (2020) reiterated that like all children, visually impaired students need assistive technologies to develop their skills and realize their full potential. Bearing in mind, the ultimate goal of inclusive education, which is to provide the best possible education and support for students with disabilities. Inclusive schools require resources (facilities and equipment) that facilitate training and support learning effectively. Therefore, to provide equal education for all children irrespective of disabilities, there is need for inclusive schools to make available electronic Braille for the visually impaired pupils/students.

Availability was conceptualized by Khana (2019) as resource that is committable, operable or usable upon demand to perform its designated or required function. It is the aggregate of the resource's accessibility, reliability and serviceability in the library. Availability is the number of information resources held by the library when patrons want them. Abubakar *et al.* (2020) supported the assertion that document availability and collection completeness are major objectives that determine library size and influence usage. Abubakar *et al.* (2020) buttressed that the need for making available electronic Braille for visually impaired is a necessary service that cannot be overlooked. The American School Library Association (ASLA) (2023) affirmed that inclusive schools need to make available electronic Braille resources in order to make students and pupils living with disabilities to be able to function effectively.

Electronic Braille is a hardware that enables visually impaired person read in Braille the text displayed on the computer screen. The American Foundation for the Blind (AFB) (2019) defined electronic Braille as an electronic device that provide access to information on a computer screen by electronically raising and lowering different combinations of pins in Braille cells. The Vision Australia (2020) described it as a tactile device, which can be attached to a computer or connected via a Bluetooth to some smart phones and enables the reader to read the contents of the screen using Braille. Electronic Braille create the dots in Braille cells by raising and lowering plastic or metal pins to correspond to the dots in the letters or numbers being represented (Kelly, 2019). Visually impaired library users use electronic Braille to read and carry out other academic activities, such as to navigate through the computer desktop, creates and edit documents, browse the Internet, type in Braille, prints in text, engages in chatting, download files, music, uses electronic mail, uses CD-ROMs for music and documents. Another adaptive library resource useful for visually impaired persons is Electronic Braille note takers.

Visually impaired pupils and students in inclusive schools also make use of electronic Braille note takers. Electronic Braille note takers are hardware devices that enable visually impaired students take notes. Ahmed and Naveed (2022) described electronic Braille note takers as portable device used by a student to take notes in class, read books, write class assignments, find directions, record lectures, and listen to podcasts. The Vision Australia (2023) viewed it as portable devices with built-in refreshable Braille displays that connect to the Internet and have word processers and other software applications that allow users to perform school, office, or personal tasks away from home. They can take notes from online documents, audio and other digital devices. This device apparently places the visually impaired at the same academic level with their sighted counterparts. Aside electronic Braille, visually impaired pupils and students in inclusive schools used audio book. The influence of electronic Braille and note takers would be invalid if there are not utilized by pupils/students. Utilization is apparently the core of library practice because resources cannot exist in isolation. They must be utilized, as noted by Ranganathans' first law of library science. Joshua *et al* (2022) noted that it is the responsibility of the university library to acquire relevant information resources needed for sustaining the teaching, learning, research and publication functions of their universities and ensure that the resources are adequately utilized. It is essential that electronic Braille be available for use so as to enable the visually impaired students be at the same academic level with the sighted pupils/students.

Therefore, this study is aimed at determining the extent of availability and utilization of electronic Braille by visually impaired pupils and students in inclusive schools in south-south and south east, Nigeria.

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Statement of the Problem

Libraries are organization that provides information to their myriad and different categories of users. Among such are the visually impaired who are gradually increasing in number on places like inclusive schools. Inclusive school libraries are meant to provide electronic Braille and electronic note takers to this group of users so as to boost their general education and learning abilities. However, the researcher is not too certain that this situation avails in the inclusive school's present in South-South, Nigeria. This calls for investigation into electronic Braille and note takers availability and their utilization by visually impaired pupils and students in inclusive schools in South-South and South-East, Nigeria.

Purpose of the Study

The main purpose of this study will be to examine the availability of electronic Braille utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria.

Objectives of the Study

The specific objectives of the study will be to:

i. examine the influence of availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria.

ii. determine the influence of availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria.

REVIEW OF RELATED LITERATURE

Electronic Braille

An electronic Braille is a Braille terminal or an electro-mechanical device for displaying Braille characters, usually by means of raising dots through holes in a flat surface. Blind computer users, who cannot use a normal computer monitor, use it to read text output. According to Eligi and Mwantimwa (2017), electronic Braille is a way in which the visually impaired can access information using electronic Braille displays where the digital content on screen is converted into Braille and is made available to be utilized. The Braille (electronic Braille) panel functions just as a computer monitor would for sighted people. Braille codes are displayed through raised dots on the panel, which visually impaired and blind people can read from.

According to the World Blind Union (2021), Braille is named after its creator, Louis Braille, a Frenchman who lost his sight because of a childhood accident. In 1824, at the age of fifteen, Louis Braille developed the Braille code based on the French alphabet as an improvement on night writing. He published his system, which subsequently included musical notation, in 1829. The second revision, published in 1837, was the first binary form of writing developed in the modern era. The International Council on English Braille (2021) noted that *Braille* is derived from the Latin alphabet. In Braille's original system, the dot patterns were assigned to letters according to their position within the alphabetic order of the French alphabet of the time, with accented letters and *w* sorted at the end. Unlike print, which consists of mostly arbitrary symbols, the braille alphabet follows a logical sequence.

Ahmad (2023) noted that electronic braille technology allows blind or visually impaired people to do common tasks such as writing, browsing the Internet, typing in Braille and printing in text, engaging in chat, downloading files, music, using electronic mail, burning music, and reading documents. Lucky and Achebe (2013) explained that it allows blind or visually impaired students to complete all assignments in school as the rest of sighted classmates and allows them take courses online. It enables professionals to do their jobs and teachers to lecture using hardware and software applications. World Blind Union (2021) explained that electronic Braille works by connecting the braille display to the computer or any other devices via a WIFI connection. After connecting the Braille to the computer, the Braille display gets the currently highlighted text on the screen. The screen there after translates the text in Braille and the device will display the text on its built-in Braille cells. Metal nylon

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pins are used by Braille display to create dots in each cell. They are said to be refreshable in the sense that when the user moves to a specific line of text, the device displays the text's Braille equivalent and when the user moves to another line, the device automatically displays that new line in Braille. The software that controls the display is called a screen reader. It gathers the content of the screen from the operating system, converts it into braille characters and sends it to the display.

Since the emergence of electronic Braille, pupils and students in inclusive and other institutions have been participating in academic activities in a tremendous rate (Rayini, 2017). Electronic Braille has seemingly bridged the information barrier experienced by visually impaired users. With the use of electronic braille, visually impaired students could access and read electronic documents. It is surprising to note that with the use of hands instead of eyes, thousands of electronic resources can be accessed and utilized for various educational purposes. This is made possible through a device known as braille display; hardware that enable visual impaired read in braille the text displayed on the computer screen. This device is capable of facilitating blind students navigate through the computer desktop, create and edit documents and browse the Internet.

In view of the importance of electronic Braille to the visually impaired pupils and students in inclusive schools, The American Foundation for the Blind (2020) maintained that Braille technology allows visually impaired students to write, browse the internet, type in braille, print in text, engage in chart, download files, music, use electronic mail, burn music and read docu`ments. It also allows them to take courses online. It can also facilitate visually impaired students to access and prints texts, from other libraries. It is noteworthy that visually impaired library users are not limited to information access and retrieval as the device could enable them do same academic work as their sighted counterparts.

Ebong and Aloysius (2022) noted that this technology is a delight to visually impaired students who will no longer rely on organizations and Brailislts to produce every single information resource in braille formats, which in most cases take a long period to produce. In fact, visually impaired students who employ the services of colleagues and friends to read lecture notes, examination questions and other information resources could access information by simply plugging the electronic braille to the computer and the information will appear in braille format. The United Nations Convention on the Right of Persons with Disabilities (2019) stated that disabled people have the right to equal access to books, knowledge and information at the same time, cost and quality as everyone else.

International Federation of Library Association, Library for Print Disable (IFLA LPD) (2019) stressed that, library services should be equitable for persons with print disability. The America Library Association (2019) corroborated that bridging the digital divide between the visually impaired and their normal counterpart requires reliable phone lines, computers, modems, electronic braille and a power supply to be available for visually impaired students across all institutions of learning. Willings (2019) affirmed that the refreshable braille display provides direct access to information, giving the student the ability to read, format and is quiet in comparison to a braille writer or embosser. Ukpak (2006) maintained that in order for visually impaired students to actively participate in the learning processes, electronic braille should be provided by various institutions and schools of the blind across Nigeria. Rayini (2017) corroborated that just as sighted people might read a newspaper, listen to a CD or download electronic information from the Internet; visually impaired people also want access to relevant information in their chosen accessible format and the best format is electronic Braille display. Since school libraries were established to cater for the information needs of their clientele, it therefore becomes imperative that electronic refreshable braille should be provided in the library. They should actually acquire the resources and ensure that visually impaired users have access and utilize it. This is possibly the only way they could attain their objective of meeting the information needs of their clientele in entirety.

Nwazuoke (2016) noted that the visually impaired could only benefit from the numerous data and literatures abound in the library if they have access to electronic braille. In other words, it is impossible for the visually impaired library user to access and utilize library resources if there are no Braille displays. Similarly, libraries will be regarded as research environment by the visually impaired if electronic braille or kurzweil reading machines, cassettes tapes, talking book, and other technological devices are provided

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(Goltz, 2011). The American Foundation for the Blind (2017) concluded that students with visual impairment can complete homework, do research, take tests and read books along with their sighted classmates if electronic Braille displays are provided in the library.

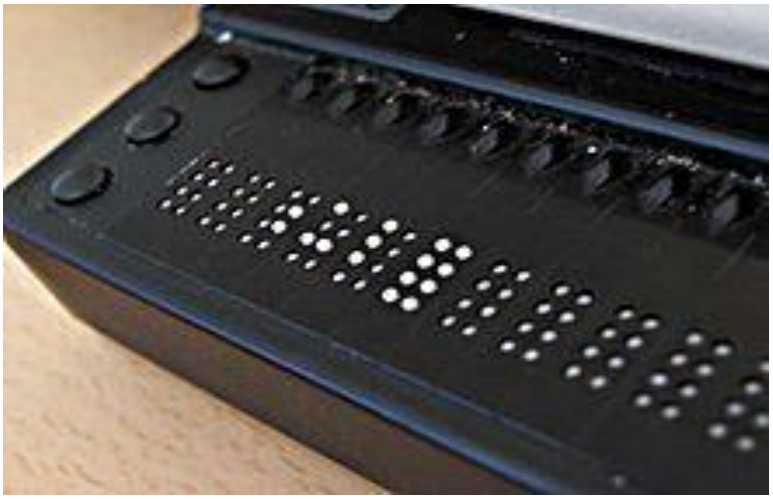

Figure 2.2.1: Refreshable Braille display

Electronic Braille Note Takers

An electronic Braille note taker is a small and portable device that can be used by visually impaired pupils and students to take notes in class using either (Braille featuring six large keys that correspond to the six dots in a Braille cell) standard (QWERTY) keyboard or both (Willings, 2022). These devices combine a high-quality Braille keyboard and refreshable Braille display with an advanced mobile platform and specialized accessible software to create the world's first android Smartphone designed for blind students and professionals. These devices according to Penkins School for the Blind (2021) are small, portable and lettering – operated devices with a Braille, keyboard for entering information. They use a speech synthesizer or Braille display for output.

Electronic note takers such as the Braille Sense are specially designed WIFFT devices for the blind and visually impaired. Most note takers give the visually impaired library user the ability to take notes, read e-mail, creates calendars and more. Many are equipped with WIFFT making it easy for the visually impaired students to receive directions to the library and lecture halls or classrooms. The American Foundation for the Blind (2023) asserted that electronic braille note takers are portable devices with braille keyboards that braille readers can use to enter information. The text stored in these devices can be read with a built-in braille display or the device can read aloud with a synthesized voice. These devices are handy for taking notes in class, and often have built-in address books, calculators, and calendars. Kabir (2016) described electronic note taker as a computer made by humanware for persons with visual impairments.

Bolingo (2019) explained that since electronic note takers are light and mobile, they are suitable for learners who require notes during a classroom. They also provide basic organizational tools, like a calendar and that, they also can be used to send or receive email.

They have built-in refreshable braille displays that connect to the Internet and have word processers and other software applications that allow users to perform school, an office, or personal tasks away from home according to D'Andrea (2019). Stressing on the importance of electronic note takers to visually impaired pupils and students in inclusive schools, Ejoru (2019) stated that is a multipurpose device which not only takes notes but also; serves as a reading and writing media, gives access to the internet, records short telephone numbers and messages for later retrieval, executes ordinary and scientific calculations, keeps track of time and appointments and, facilitates the composition and printing of essays.

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Figure 2.2: Electronic Note takers

MATERIALS AND METHODS

Research Methodology

Design of the Study

Descriptive survey design was adopted for this study. Kristonis (2012) defined descriptive survey design as the collection of data that describes events and then organizes and tabulates the data collection. It is seen as the type of research that studies large and small populations by selecting and studying samples chosen from the population to discover the relative incidence, distribution, interrelations of sociological and psychological variables. Descriptive survey design was used in the study because it facilitates the use of questionnaires with numerically rated items to obtain responses from a target population. It also helps to obtain information describing characteristics of a large sample of individuals of interest relatively quickly. The variables of interest in this study are electronic Braille, note-takers and utilization.

Area of the Study

This study was conducted in South-South, Nigeria. The South-South zone is popularly known as the Niger Delta oil zone of Nigeria. The zone is approximately located between longitude $5^{0}00$ and $6^{0}45$ east and latitude $5^{0}00$ and $6^{0}30$ north of the country. It is a tropical region, known for heavy rainfall. Major occupations are agriculture, fishing and extraction of raw materials, such as limestone, gold, oil. Approximately 31 million people of more than 40 ethnic groups live here. They including the Bini, Efik, Ibibio, Annang, Oron, Ijaw, Itsekiri, Isoko, Urhobo, Ukwani, and Kalabari. Inhabitants in this zone speak about 250 different dialects. The South-South is of high interest due to its rich natural resources predominantly crude oil, which is the country's highest foreign exchange earner. It is a sensitive location in many ways when infrastructural and educational perspectives are considered. The major occupation of people in the zone includes fishing, farming, trading carving, weaving while some people work in industrial and civil service commission. The zone currently has several inclusive schools.

Population of the Study

The population of the study consisted of 302 visually impaired library users in ten (10) inclusive schools in South-South, Nigeria.

(Management of the 10 Inclusive Schools under study, 2025)

Sample and Sampling Technique

In the study, all the 302 visually impaired library users were sampled using census sampling technique. Census is a sampling technique in which data are collected for each and every element/unit of the population. It is also referred to as total enumeration sampling technique. The small size of the population prompted the researcher

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to adopt this sampling technique. Therefore, data was collected from the entire 302 visually impaired library users in inclusive schools in South-South, Nigeria.

Instrumentation

A researcher-developed interview schedule known as "Availability of Electronic Braille and Utilization by Visually Impaired Pupils and Students Questionnaire (AEBUVIPSQ)" was used in collecting data for the study. It was divided into two sections. Sections 'A' and 'B'. Section 'A' contained items generated to elicit responses in line with the independent variable while section 'B' elicited information on the dependent variable. The questionnaire was graded using a 4-point rating scale; that was represented as Highly Influence (HI) Influenced (I), Moderately Influenced (MI) and Little Influenced (LI) for section 'A' and Highly Influenced (HI) Influenced (I), Moderately Influenced (MI) and Little Influenced (LI) for the section 'B'.

Validation of the Instrument

The instrument was face validated by the researchers.

Method of Data Collection

The researchers and trained research assistants administered the copies of the instrument.

Method of Data Analysis

The data generated was analyzed using mean, standard deviation to answer the research questions while t-test was used to test the hypotheses at .05 levels of significance.

Analysis of Research Questions

Research Question One

What is the influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria?

Table 4.1: Mean and standard deviation of the influence of the availability of electronic Braille on utilization by visually impaired pupils and students in South-South, Nigeria (n=302)

Variables		$\overline{x}$	N	SD
	Electronic Braille	3.03	152	0.32
	Utilisation	2.58	152	0.54

The result in Table 4.1 shows the weighted mean scores of 3.03 and 2.58 obtained by the respondents for availability of electronic Braille on utilization by visually impaired pupils and students respectively and their respective standard deviation scores of 0.32 and 0.54. These standard deviation scores are small which means that the spread of scores are not too wide apart. In addition, since the weighted mean scores for the two variables are above the cutoff point of 2.50, it means that there is influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria.

Research Question Two

What is the influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria?

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Table 4.2: Mean and standard deviation of the influence of the availability of electronic Note taker on utilization by visually impaired pupils and students in South-South, Nigeria (n=302)

Variables		$\bar{x}$	N	SD
	Electronic note taker	3.01	152	0.36
	Utilisation	2.53	152	0.51

The result in Table 4.2 shows the weighted mean scores of 3.01 and 2.53 obtained by the respondents for availability of electronic note taker on utilization by visually impaired pupils and students respectively and their respective standard deviation scores of 0.36 and 0.51. These standard deviation scores are small which means that the spread of scores are not too wide apart. In addition, since the weighted mean scores for the two variables are above the cutoff point of 2.50, it means that there is influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria.

Hypotheses One

There is no significant influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in Akwa Ibom State

Table 4.3: Dependent t-test analysis of the influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in Akwa Ibom State (n= 302)

Variables		Mean	N	SD	t-value	Sig.	Decision
	Electronic Braille	3.03	152	0.32	5.01	0.01	Significant
	Utilisation	2.58	152	0.54			

*significant at P< .05; df= 301

The result in Table 4.3 showed that the computed t-value is 5.01 while the corresponding probability level of significance is .01 alpha at 151 degrees of freedom. This level of significance is less than .05 in which the decision is based. With this result, the null hypothesis was rejected. This implies that there is significant influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria

Hypotheses Two

There is no significant influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria

Table 4.4: Dependent t-test analysis of the influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria (n= 302)

Variables		Mean	N	SD	t-value	Sig.	Decision
	Electronic note taker	3.01	152	0.36	5.05	0.01	Significant
	Utilisation	2.53	152	0.51			

*Significant at P< .05; df= 301

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The result in Table 4.4 showed that the computed t-value is 5.05 while the corresponding probability level of significance is .01 alpha at 151 degrees of freedom. This level of significance is less than .05 in which the decision is based. With this result, the null hypothesis was rejected. This implies that there is significant influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria

Findings

i. There is influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria.

ii. There is influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria.

DISCUSSION OF FINDINGS

Availability of Electronic Braille on Utilization by Visually Impaired Pupils and Students in Inclusive Schools in South-South, Nigeria

The result of the analysis of influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria revealed that there is significant influence of the availability of electronic Braille on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria. The result of this study is in disagreement with Ebong and Aloysius (2022) study whose result revealed that none of the university libraries in South-South, Nigeria stocked electronic refreshable braille in their libraries. The result of this study is in variance with Obim and Akpokurerie (2022) study whose result showed that there is inadequate availability of Braille assistive technologies for effective school library service delivery to students with disabilities in Nigeria. Also, the extent of utilization of assistive technologies for effective school library service delivery was very low. The result of this study further contradicts Dominic *et al.* (2020) study on availability of electronic Braille by visually impaired students in northwest, Nigeria. The findings revealed that, majority of the assistive technologies required to support students with disabilities are not available in the special education schools.

Availability of Electronic note taker on Utilization by Visually Impaired Pupils and Students in Inclusive Schools in South-South, Nigeria

The result of the analysis of influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria revealed that there is significant influence of the availability of electronic note taker on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria. The result of this study is in line with Hayden *et al.* (2014) study whose result revealed that visually impaired schools equip their libraries with note taking devices. The result of this study is further buttressed by Sutar and Hande (2021) study whose result revealed that inclusive schools in India provide electronic Braile note takers and students and teachers used assistive note taking devices for their academics. The result of this study contradicts the finding of Dominic *et al.* (2020) that electronic Braille note takers are not available in inclusive schools.

CONCLUSION

The study, which investigated the availability of electronic Braile on utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria, confirmed the availability and utilization of electronic Braile by visually impaired pupils and students in inclusive schools in South-South, Nigeria. The study concluded that availability of electronic Braile significantly influence utilization by visually impaired pupils and students in inclusive schools in South-South, Nigeria. The study confirmed the Goal 4 of the United Nation Sustainable Development Goals (SDGs) which proposes the provision of inclusive and equitable quality education and promotion of lifelong learning opportunities for all. It further validates the National Policy on Education (2004) which stipulates a definite provision of library resources in print and electronic formats for

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people living with disabilities

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were posited:

i. Inclusive schools in Nigeria should provide electronic Braille in order to enable the visually impaired pupils and students have access to information on electronic format.

ii. Management of inclusive schools in Nigeria should ensure that electronic note takers are made available for visually pupils and students to enable them carry out their academic work.

iii. Management of inclusive libraries should ensure that that the library has reliable internet connection so that visually impaired pupils and students can browse the internet and do other academic assignments.

iv. Government should provide adequate funds for the provision of adaptive library resources for the visually impaired pupils and students.

v. Management of inclusive schools should provide constant power supply so that the visually impaired pupils and students can access adaptive resources in the library.

vi. Librarians and other library officers should be trained and re-trained on how to handle adaptive library resources so that they would be able to provide effective services to the visually impaired pupils and students.

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